

Appl. No. 10/021,216
Reply to Office Action of October 3, 2005

REMARKS/ARGUMENTS

Claim 9 is amended to clarify its recitation, in response to the formal objection.

Concerning the restriction, applicants respectfully disagree with the Examiner's conclusion that claims 10-13 are directed to a non-elected species.

The Examiner states that newly submitted Claims 10-13 are directed to Species B, Figure 9. However, as explained below, this conclusion is wrong. Claims 10-13 are directed to Species A, Figure 1, which is an elected invention.

Referring to the attached drawings and the detailed description in the specification, applicants explain why claims 10-13 are directed to Species A as follows:

(1) Species A (Figure 1) Claims 1-2

In the first step, a thin-film plating is formed on a channel plate. In this embodiment since the thin-film plating is an electroless plating, a catalyst is applied on the channel plate before the thin-film plating is formed. Although the

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catalyst is not expressed in claim 1, the thin-film includes the catalyst conceptually in claim 1, as would be understood by a person in this field.

In the second step, part of the thin-film plating (including the catalyst) is removed by a laser (process A5 in Fig. 1 - pages 26-27 of the specification)

In the third step, an additional plating layer is formed on the thin-film plating. The additional plating layer is not formed on a portion where the thin-film plating is removed.

(2) Species B (Figure 9) Claim 3 and 7

In the first step, a catalyst is applied on a channel plate_

In the second step, part of the catalyst is removed by a laser.

In the third step, a plating layer is formed on the catalyst. The plating layer is not formed on a portion where the catalyst is removed, because there is no catalyst.

(3) Species C (Figure 11) Claim 4-6

In the first step, a catalyst is applied on a channel plate.

In the second step, a plating layer is formed on the catalyst.

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In the third step, part of the plating layer (including the catalyst) is removed by a laser.

Referring to claims 10-13, these claims describe the method illustrated as Species A in the attached drawings. The timing of removal by a laser is a feature that distinguishes the species shown in the various Figs. hereof. Therefore, it is submitted that claims 10-13 are clearly directed to Species A.

In view of the above, withdrawal of the finality of the last Office Action and the issuance of an action on the merits for claims 10-13 is respectfully requested.

The claims are rejected as obvious over four total references. Reconsideration is requested.

One of the advantageous features of the invention is that an electrode is formed when the plating is thin. Therefore, the electrode can be formed by a laser with small energy. Because of the removal, when the plating is continued, additional plating is not formed on the portion where plating or a catalyst is removed.

The rejection by the Examiner relies on USP 5,185,055 to Temple (Temple '055). As was pointed out in the last AMENDMENT,

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in Temple '055, the plating 27 is formed on a portion that has been removed. In contrast, the present invention, when applying the second plating, plates only on portions that are not removed.

In response to the earlier arguments, the Example points to Temple '055, especially at Figs. 3(a)-(e). The Examiner's position is understood to rely on the Fig. 3(d) wherein the additional plating layer 27 may overlap a little bit onto the thin film plating 25.

It is submitted that the process shown in Fig. 3(a) - Fig. 3(e) of Temple '055 cannot achieve the advantages of the present invention which allow the electrode to be formed using low energy laser. Furthermore, in view of the differences in technique, applicants note additional features not shown or suggested in Temple '055 and which are required by the claimed method of the present invention. One such feature, which appears in the first step of claim 1, is the requirement of plating a surface of a channel plate having a plurality of grooves for the ink channels. Fig. 3(a) of Temple '055, which has layer 11 reasoned to meet the "thin-film plating layer" requirement of the present invention, does not have grooves. Also, the second step of the presently claimed invention requires a removing of the

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thin-film plating layer by a laser beam (the advantage being that a low energy laser beam can be used for the thin layer). As described at the end of column 5 and in column 6, the ink channels for Fig. 3(b) are formed by machining ("disc sawing" or simply "sawing"), and that the laser ablation step of the process shown in Fig. 2(c), cannot be used for reasons explained therein. Thus, the process shown in Fig. 3(a) - Fig. 3(e) teaches away from the use of laser cutting.

The last step requires plating the channel plate on the thin-film plating which has not been removed by the laser beam. Fig. 3(d) shows plating on the portion that has been removed.

In view of the above, it is submitted that the present invention is not shown or suggested by the combination art which relies in part on the teaching in Temple '055. The other references do not supply the missing teaching or do not overcome the teaching away of the use of a laser beam as a substitute for the saw cutting required by Temple as described in Temple.

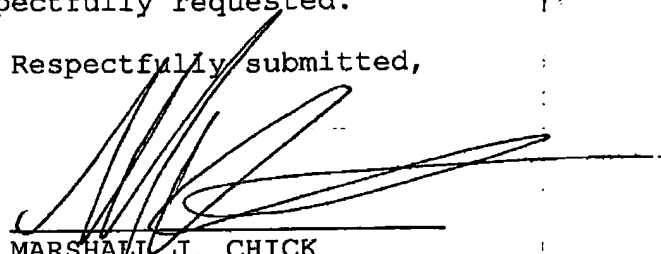
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Withdrawal of the rejections and allowance of the
application are therefore respectfully requested.

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Respectfully submitted,


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Enclosure: Drawings showing species